

oscillations between 2900 and 200 meters, combined with frequent inversions, our line sinks by the end of November and beginning of December to the ground. In December, 1903, there prevails a formation of warm strata up to 2000 meters, except on the days of 7-11th.

In presenting this first essay of a continuous study of tem-

perature in the free atmosphere to our colleagues and to all friends of scientific aeronautics, we can not forbear to remark that it has been the result of hard work, done in all sorts of wind and weather, the execution of the ascents remaining chiefly in the hands of Professor Berson and Dr. Elias, besides the director and all the other members of the observatory.

## NOTES AND EXTRACTS.

### PLANETARY METEOROLOGY.

The following letter is an interesting illustration of the extent to which astrology still survives in the minds of those who have not kept up with the progress of civilization and education.

SAN DIEGO, CAL., April 18, 1904.

WILLIS L. MOORE.

Chief of Weather Bureau, Washington, D. C.

I beg to ask if it is contrary to your rules to allow inquiries and suggestions from the public if they do not become too frequent and embarrassing. Our weather at San Diego for some years past has been quite uncertain, due, as I assert, to the planetary changes and atmosphere. This year, or rather from last August up to February of this year, 1904, we have had more prolonged easterly winds than before in my experience of twenty years in San Diego County. As a result, the public are becoming more interested in astrological forecasts, and have been for the last few years. Having a large circle of friends who often inquire of me about the weather as I understand it from the moon phases, conjunctions, wind, etc., I have ventured to approach our Weather Bureau official a few times in the most respectful way, by way of inquiry, with a view to confirm or otherwise prevailing indications of coming changes, remarking that so many of the moon changes were close to noon, when I have been abruptly met with the remark from the forecast official, "We do not take any stock in such stuff as that." In conclusion, allow me to say while it is difficult to prognosticate weather in San Diego except by the instruments thirty-six hours ahead, there are numbers of farmers here who in the last few years have made more accurate forecasts based on astrology, moon changes, and unsettled, erratic wind currents than the Bureau of San Diego, and as a result many persons here are looking to Los Angeles. San Diego citizens are turning to Los Angeles Weather Bureau.

Yours, very respectfully,

(Signed)

BENJAMIN JUDKINS.

Born June 20, 3 p. m., 1846. Sign Gemini; moon in Taurus; sun in conjunction with Mercury in the end of Gemini in  $\Delta$  to Saturn; R in beginning of Pisces; moon in Taurus at conjunction; Venus close star to Mars in Cancer; M. C. node  $11^\circ$  ascending M. 12.

In connection with the above evidence of the continued existence of believers in astrology, we notice extracts from the San Diego newspapers lamenting the fact that southern California had no rain in October, November, and December, and no prospect of rain during January, although the local weather prophets, and even astrologers, living at a distance had promised considerable rain for the winter season. The editor of the San Diego Times says:

It failed to materialize, and we are thrown upon the Weather Bureau again with added experience in discounting old time signs as interpreted by that wonderful array of weather-wise men who annually find their way into print to demonstrate what they can not predict about the weather.

It certainly is a matter of surprise that there should be so many sensible men foolhardy enough to risk their reputation by attempting to make long-range weather forecasts when there is a reasonable certainty that they will thereby simply make themselves the laughing stock of the community.

What can the motive be, if not a mere desire for local notoriety? Surely a cautious man would make many private predictions and make sure of having a large percentage of verifications before beginning to publish. But these astrologers seem to keep no records, or at least ignore them, since every attempt to verify their work shows its utter unreliability.

Are they not monomaniacs—men of unbalanced minds, paradoxers, or possibly even quacks and fakirs?

One of the most persistent of the planetary forecasters says:

The papers that publish my forecasts are not edited by fools and the millions of families that read them are not so ignorant that they do not

know what they want. The fact that they pay for my work is evidence that they closely examine it and have found it useful.

We think this enthusiast is mistaken. Newspaper editors are always willing to pay for whatever increases the popularity of their newspapers. They publish interesting matter that will, they think, catch the attention of the reader simply because it is news. They would like to have the reputation of publishing nothing but what is correct, reliable, and true, but this is almost an impossibility in many cases. So they publish nearly everything that comes handy, and leave it for the discreet reader to make his own selection.

Perhaps one million persons see the astrological forecasts, but do one hundred thousand read them with any care or attention, or find them useful? A forecast is useful only when a man actually makes some use of it, and really profits by its use. Our experience is that of the millions who read the daily forecasts of the Weather Bureau some rarely make any use of them, others do make use of them. Only a relatively small percentage of readers know how to put these forecasts to use or are able to alter personal business arrangements to suit the predicted weather. They ordinarily glance at the prediction. If it says "rain," they may pick up an umbrella which they would otherwise have neglected; if it says "fair weather," they may save themselves the trouble of carrying an umbrella. Only a small percentage of the Weather Bureau predictions relate to storms or extremely severe weather changes, such as would necessitate the rearranging of plans of work for the day. It must be very much the same way with the long-range astrological forecasts. Only those can be really useful that foretell such important matters as demand attention and foretell them in such a definite way that we know when and where they will occur. Unfortunately, the astrologer rarely or never does this, and, therefore, we think that his forecasts can not be really useful to the community. They, however, do serve as topics of conversation, to keep the subject of astrology always before the public, to stimulate credulity in the minds of those who admire and wonder at the wisdom of the learned seer. We remember very well that certain newspapers in Cincinnati supported the feeble beginnings of our work in forecasting by the assurance that the subject was one of such popular interest that they were quite willing to pay a certain sum annually (although I believe they were never called on to do it). Whether our predictions were verified or not was less important than the fact that we were about to make the trial, and everyone wished to see what we said.

A few years later in Washington we were approached by some of the brokers, operators, and gamblers who shove the prices of grain and stocks up and down, and were assured that a high price would be paid for special indications about the weather, as it was now forming a very important additional basis for their gambling operations. We refused to have anything to do with such use of the information in our possession, but we have lately noticed that some of the men who are now engaged in long-range forecasting for the daily newspapers are also going into the business of forecasting the crops and even the prices of crops. From this point of view, they and their colleagues "on 'change'" may possibly think that their planetary forecasts are "useful," since whatever helps one to make a fortune or a living is useful to him. The Weather Bureau can not altogether prevent the misuse of its daily forecasts, but by making them free to the whole public

and by giving as wide a circulation as possible, it tries to put all citizens on the same basis, so that a designing speculator shall have as little advantage as possible over an honest and single-minded seller or producer.

#### WEATHER BUREAU MEN AS INSTRUCTORS.

The Editor would appreciate the courtesy if Weather Bureau men would kindly send him catalogues or announcements of their courses. This will enable him to state more fully and correctly the position of meteorology in the respective institutions.

Mr. George A. Loveland, Section Director, Lincoln, Nebr., has for some time been "instructor in astronomy and meteorology" at the University of Nebraska. On April 13 the board of regents of that institution adopted resolutions expressing their appreciation of Mr. Loveland's efficiency as an instructor. He offers courses in general meteorology, agricultural meteorology, and climatology. Recently Mr. Loveland has undertaken a detailed study of the climate of Nebraska as a part of his work in the graduate course looking to the degree of Ph. D. He will take up the subject in detail in its relation to ground water, topography, and geologic structure. Prof. G. E. Condra, of the department of geology, states that at present the most interesting subjects for investigation are to be found in our sand-hill region. "It will take the combined work of meteorologists, geographers, and geologists to solve the problems there."

We copy the following abstract of Mr. Loveland's courses from the Bulletin of the University of Nebraska, Series VIII, No. VIII:

1. *General meteorology*.—The earth's atmosphere, including such subjects as composition and extent, temperature, moisture, dew, frost, clouds, precipitation, winds, storms, with a study of weather maps, lectures, readings, and laboratory work in constructing weather maps and making forecasts. One hour attendance. One hour credit. First and second semesters.

2. *Agricultural meteorology*.—The earth's atmosphere. Attention is given to the subjects most valuable to agricultural students. Three hours attendance. Three hours credit. Second semester.

3. *Climatology*.—A laboratory course, including a study of meteorological instruments, their construction and errors; the equipment of an observing station; the organization and work of the weather services of the world; a study of climates, both local and general, with an extensive comparison of climates of different cities and countries. Must be preceded by course 1 or 2. One hour attendance. One hour credit. First and second semesters.

Meteorology is obligatory in certain elective groups of studies, but is elective in others. In the graduate school meteorology is considered as a minor for the degree of Ph. D.

Mr. Thomas J. Considine, Observer at Erie, Pa., lectured before the Boys' Club of that city on the formation of rain.

Mr. George E. Franklin, Local Forecaster at Los Angeles, Cal., reports that information relative to the work of the Weather Bureau, explanation of instruments, and short talks on elementary meteorology have been given to pupils of various schools, including the Harvard School, the Girls' Collegiate School, and the High School class in physical geography.

Mr. W. D. Fuller lectured at the High School on elementary meteorology and the work of the Bureau, and also addressed the Academy of Science on the same subjects.

Mr. F. P. Chaffee, Section Director at Montgomery, Ala., lectured before the Boys' High School of that city, January 23, 1904, on "The Weather Bureau and its work." He gave a

general account of the work and methods of the Bureau, a description of the standard instruments, and an explanation of the laws of storms.

On February 26 he lectured on meteorology before the students and teachers of Starke's University.

Mr. P. H. Smyth, Observer at Cairo, Ill., delivered an address at that place on February 9, before the seventeenth annual convention of the county supervisors, commissioners, and clerks of the State of Illinois. His subject was, "The United States Weather Bureau and its value to commerce, agriculture, and navigation."

Mr. S. W. Glenn, Local Forecaster, reports that the summer school of the college at Huron, S. Dak., visited the Weather Bureau local office for instruction in meteorology on July 21, 1903. The summer school is composed largely of teachers from the surrounding country.

Mr. W. A. Shaw, Observer, Northfield, Vt., has recently completed a course of instruction to the senior class in Norwich University. The course covers a period of eleven weeks, two hours per week. For the past eight years the senior class has been required to take this course and the concluding examinations.

Mr. James H. Scarr, Observer, Sacramento, Cal., gave a short talk before the junior class of the Young Men's Christian Association of that city on April 16. The movement of storm centers was briefly explained, and the subject of California rainfall considered at some length.

On April 29 he addressed the debating society of the Young Men's Christian Association. He explained what the Weather Bureau does and does not do, and that at present there is no knowledge available that justifies us in indulging in long-range forecasts of the weather. Much interest was manifested in his remarks and many questions were answered.

Mr. Ford A. Carpenter, Observer, San Diego, Cal., on March 11, lectured before the graduating class of the B street school on "Meteorology, a nature study." Some account was given of the Bureau and its work; local climatology was treated briefly, but special attention was given to suggesting the formation of habits of observation by observing the clouds, air currents as shown by smoke, etc., and resulting phenomena.

On May 6 he delivered an address before the class in physical geography of the National City, Cal., school on "Some characteristics of Pacific coast storms and their control of local climatic condition."

Mr. J. R. Weeks, Observer, Macon, Ga., under date of March 18, reports that he delivered a lecture, illustrated with stereopticon views, before the science department of Wesleyan Female College. He expects to repeat the lecture for the benefit of the entire college and the public.

On February 5 he delivered the first of a series of lectures on meteorology in the new science hall of Mercer University at Macon. It is hoped that meteorology will become a permanent feature of the course of instruction at the University, the necessity having been especially urged by Prof. W. E. Godfrey of the department of physics.

On April 7 Mr. Weeks delivered a lecture, illustrated by the stereopticon, to visiting teachers from Brunswick and Glynn counties, Ga.